REMARKS

Claims 1-11 are pending in the application.

Claims 1-11 stand rejected.

Applicant' specification and claims have been amended herein to clarify the invention. An explanation of the amendments is included below. No new matter is entered.

The specification is objected to as being incomprehensible so as to preclude a reasonable search of the prior art. The specification is also rejected under 35 U.S.C. § 112, first paragraph. The Examiner points out several areas in which there are inconsistencies where the specification could not be understood. The Examiner is also requesting that acronyms be clearly defined in the specification.

1) Applicants amend the claim to replace "CDMA" with the phrase of its unabbreviated form.

2) Applicants further explain that the word "RAKE" is not an abbreviation of any specific phrase, but generally written in capitals and is a term well known to one skilled in the art. *Nakamura*, for example, uses the same word, RAKE, in its section 5.1.1 and *Popovic* uses the word, RAKE, in col. 8, line 62. A "RAKE" is one of path diversity types (see lines 11-14 on page 1 of the present specification). The word, "RAKE", is employed for its association with a rake used for collecting various pieces of something in terms of this particular path diversity type representing one in which dispersed and/or delayed waives resulting from the same one signal are collected and synthesized together. Lines under "Background of the Invention" section of USP 5,237,586, for example, defines RAKE as, "Typically, this is done by a RAKE receiver, which is so named because it rakes all the multipath contributions together."

84112312_1

The Wikipedia online dictionary defines RAKE "[[t]]he rake receiver is so named because of its analogous function to a garden rake, each branch collecting bit or symbol energy similarly to how tines on a rake collect leaves. Rake receivers are common in a wide variety of radio devices, including mobile phones and wireless LAN equipment."

As the term RAKE is well known by one skilled in the art, therefore the rejection should be withdrawn.

Claims 1-11 are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. Applicant's claims and specification have been clarified herein. In view of the clarification and below explanations, it is respectfully requested the rejections be withdrawn.

Claims 3 and 5 are both rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 3 has been amended to depend from claim 1. Claim 5 has been clarified where the channel estimating unit also serves as a channel estimating unit for demodulating data.

It is respectfully requested that the rejection under 35 U.S.C. § 112, second paragraph be withdrawn.

Claims 1, 2, 4 and 11 are rejected 35 U.S.C. § 102(b) as anticipated by Nakamura and claims 6-8 are rejected as unpatentable over Nakamura as in claim 1 and further in view of Abu-Dayya. Claim 9 is rejected as unpatentable over Nakamura as in claim 1 and further in view of Baum and claim 10 is rejected as unpatentable over Nakamura and further in view of Popovic.

It is respectfully submitted that claim 1 should be allowed because the claimed inventions are neither taught by nor obvious from *Nakamura* for at least the following reasons:

841123312_1

According to conventional technology, a pilot signal is handled separately from a sync word (SW). However, they are the same in terms of either of them being composed using pre-determined sets of patterns all known to both the transmitting and receiving sides.

Applicant's claimed invention offers a way to remove the need for handling the pilot signal and SW separately and enables using either the pilot signal or SW for the duty of a pilot signal or an SW for consequently improving efficiency of a signal transmission.

If a system is configured to use an SW also as a pilot signal within the confinement of conventional technology, one skilled in the art would consider such a system to be faced with a number of difficulties. For example, a base-station could wrongly assume an associated communication being held with a portable terminal to be continuing even after the portable terminal has terminated the communication.

In summary according to a general and conventional method, pilot signal and SW are handled separately from each other, while the present invention uses an SW not only as an SW, but also as a pilot signal. The present invention, therefore, has to have a way to overcome the difficulties arising out of using SW also as a pilot signal, those in which, for example, the base station wrongly assumes that an associated communication held with a portable terminal to continue even after the portable terminal having terminated the communication.

One of the unique features of the present claimed invention lies in demodulating an SW, bit by bit, using the result of a channel-estimation made based on all or part of the bits constituting a pilot signal other than the bit of concern (in the claims this bit being demodulated at a time is indicated by the phrase "a target bit").

The demodulation quality improves in this way (for example see claim 4). It is, however, possible to adopt a configuration pattern in which not only the target bit but also some other bits

84112312_1

are removed away from those based on which the channel estimation is made (for example seeclaims 2 and 3).

In an example case in which a pilot signal is constituted by a set of p bits and the first s bits of the set represent an SW, the present invention and _Nakamura_ vary as follows:

Nakamura describes only as "other than the sync word (SW)" and consequently implies that the channel estimation is made based on the $(s+1)^{th}$, $(s+2)^{th}$... p^{th} bits and is used for demodulating any of the 1st, 2nd ...s^{th} bits.

In applicant's claimed invention, by contrast, the channel estimation is made based on all or part of the bits other than the jth bit for demodulating the jth bit, wherein j is $1 \leq j \leq s$. In this way, bits constituting the SW may be employed as bits based on which the channel estimation is made and this estimation result is used for demodulating an SW bit other than those relied on for the channel estimation.

Applicant's claimed invention differs from _Nakamura_ in terms of the features that Applicant's claimed invention employs some SW bits for conducting channel estimation. Applicant's claimed invention also differs from _Nakamura_ in terms of the features that Applicant's claimed invention may conduct channel estimation based on a bit set from which some of the non-SW-constituting bits are excluded.

Applicants claims to recite the features that are distinctive from _Nakamura_ including "demodulating each bit of the synchronization signal" and "said predefined part is defined for each target bit of the synchronization signal to be demodulated."

Applicants claims 2 through 4 provide more specific phrases, "predefined part". Claims 2 and 3 correspond for example to Figs. 9 and 10. The claim 2 and 3 inventions are different from _Nakamura_, with respect to the features of these claims associated with not including bits in

84112312_1

units each representing one full slot or group into bits employed as a base for conducting channel estimation.

The claim 4 invention is different from _Nakamura_, with respect to the feature of claim 4 associated with not including a target bit into those employed as a base for conducting channel estimation, while _Nakamura_ does not include any of SW bits into those employed as a base for conducting channel estimation.

Applicants clarified the phrase, "modulation", in claim 6 to "demodulation". By this amendment, it becomes clear that weight coefficients adopted for the channel estimation conducted for the SW demodulation are selected separately from weight coefficients adopted for another type channel estimation, which is concerned with data channels. This amendment is based on a description in lines 15 – 24 on page 14 of the original specification document. _Abu-Dayya_, also, describes employing a weighting factor, but it does not describe adopting mutually different weighting factors for channel estimation conducted for data channel and pilot channel.

Applicants amend claim 9 to limit further the features associated with phrases, "parameters for synchronization detection" and "a state of a propagation path" based on the embodiment described in lines 1 – 9 on page 17 and Fig. 16 of the original specification of the present application.

Claims 6 through 9 are directed to processes in contrast to the conventional method and for at least the foregoing reasons, it is respectfully requested the rejections be withdrawn and the claims allowed.

Claim 11 includes steps which are distinctive for at least the foregoing reasons. It is respectfully requested the rejections be withdrawn and the claims allowed.
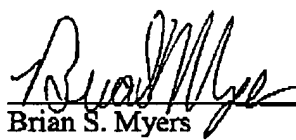
R41123I2_1

In view of the remarks set forth above, this application is in condition for allowance

which action is respectfully requested. However, if for any reason the Examiner should consider

this application not to be in condition for allowance, the Examiner is respectfully requested to

telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,

Brian S. Myers
Reg. No. 46947

CUSTOMER NUMBER 026304
Telephone: (212) 940-8703
Fax: (212) 940-8986 or 8987
Docket No.: FUJO 18.889 (100794-00136
BSM::bf

84112512_1